



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

DEVAL L. PATRICK
Governor

MAEVE VALLELY BARTLETT
Secretary

DAVID W. CASH
Commissioner

July 9, 2014

Mr. Alan Douglass
Essential Power Massachusetts, LLC
15 Agawam Avenue
West Springfield, MA 01089

RE: West Springfield
Transmittal No.: X260950
Application No.: WE-14-012
Class: *OP*
FMF No.: 323182
AIR QUALITY PLAN APPROVAL

Dear Mr. Douglass:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed alteration of two natural gas and #2 fuel oil-fired General Electric Model LM6000 simple cycle turbines (Emission Unit #19 and #20) at your electric power generating station located at 15 Agawam Avenue in West Springfield, Massachusetts ("Facility").

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

This Plan Approval supersedes the carbon monoxide pound per hour emission rate limitation for EU 19 and EU 20 while firing distillate oil contained in Non-Major Comprehensive Plan Approval #1-P-04-011 dated July 30, 2004.

1. DESCRIPTION OF FACILITY AND APPLICATION

Essential Power (EP) Massachusetts, LLC, located on Agawam Avenue in West Springfield is an electric power generating station consisting of one steam electric generating unit (EGU) and three peaking combustion turbines.

Two of the three peaking combustion turbines are General Electric (“GE”) Model LM6000 turbines (known as EU 19 & EU 20) which fire natural gas and distillate oil and operate in peaking mode with a net total output of 90 MW. EU 19 and EU 20 were originally issued a non-major comprehensive plan approval on January 19, 2001 for burning natural gas only. The operation of the natural gas-fired turbines was made final by Plan Approval #1-B-03-015 which was issued on June 9, 2003. On November 14, 2003, a Non-Major Comprehensive Plan Approval (NMCPA) #1-P-03-032 was issued to allow for EU 19 and EU 20 to burn natural gas and distillate oil with a sulfur content of no more than 30 ppm. NMCPA #1-P-03-032 also included, among other things, a carbon monoxide emission rate of not to exceed 4.3 pounds per hour while firing distillate oil. Another NMCPA #1-P-04-011 was issued on July 30, 2004, which allowed for an increase in the amount of natural gas and distillate oil that could be used in EU 19 and EU 20. In addition to the increased fuel usage, NMCPA #1-P-04-011 included a more stringent carbon monoxide emission rate of 1 pound per hour while firing distillate oil for each combustion turbine as part of best available control technology (BACT).

EP Massachusetts, LLC, has stated that the existing carbon monoxide emission rate of 1 pound per hour, contained in NMCPA #1-P-04-011, was an error and should not have been established as part of BACT for EU 19 and EU 20. Therefore, EP Massachusetts, LLC has submitted a limited plan approval application to revise the carbon monoxide emission rate during the firing of distillate oil from 1 pound per hour to 4.3 pounds per hour for EU 19 and EU 20. The carbon monoxide emission rate of 4.3 pounds per hour was previously established as BACT for EU 19 and EU 20 in NMCPA #1-P-03-032.

EP Massachusetts, LLC has demonstrated that the existing carbon monoxide emission rate of 1 pound per hour for EU 19 and EU 20 is not representative of BACT for GE Model LM6000 turbines operating in simple cycle mode while firing distillate oil and controlled by an oxidation catalyst. This demonstration consisted of supporting carbon monoxide emission rate calculations, an evaluation of the USEPA’s RACT/BACT/LAER clearinghouse database, the California Air Resources Board BACT database, the Texas Commission on Environmental Quality combustion turbine list dated May 28, 2014 and a general search of air permits for aeroderivative turbines in simple cycle mode while firing distillate oil. Based on this information, MassDEP agrees that the existing carbon monoxide emission rate of 1.0 pounds per hour for EU 19 and EU 20 should be revised.

The facility has proposed a carbon monoxide emission rate of 4.3 pounds per hour (based on a 1-hour block average) as BACT for EU 19 and EU 20. The proposed BACT pound per hour emission rate is based on the demonstration discussed in the previous paragraph, historical continuous emission monitoring data and NMCPA #1-P-03-032 which previously established a

carbon monoxide emission rate of 4.3 pounds per hour (based on a 1-hour block average) as BACT. In addition, the facility has an existing carbon monoxide continuous emission monitor to monitor and record the carbon monoxide emission rates from EU 19 and EU 20. MassDEP agrees with this BACT determination.

The existing pounds per million Btu per hour of heat input, parts per million by dry volume at 15% oxygen and annual carbon monoxide emission rates for EU 19 and EU 20 will remain unchanged.

Regulatory Applicability

The proposed increase in the carbon monoxide pound per hour emission rate will not be subject to 40 CFR Part 60, Subpart GG (Standards of Performance for Stationary Gas Turbines). 40 CFR Part 60, Subpart GG does not regulate emissions of carbon monoxide and therefore the emission rate increase is not a modification according to 40 CFR 60.14(a).

The Prevention of Significant Deterioration regulations of 40 CFR § 52.21 will not apply to the proposed carbon monoxide pound per hour emission rate change since there will be no changes to the annual carbon monoxide emission rates.

The revised BACT pound per hour emission rate for carbon monoxide has been established in Table 2 of this plan approval.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Pollution Control Device (PCD)
19	Natural Gas and #2 Fuel Oil – Fired General Electric LM6000 Simple Cycle Combustion Turbine Generator (CTG-1) (constructed 2002)	462.6 MMBtu/hr – Natural Gas 437 MMBtu/hr - #2 fuel Oil	Water injection, SCR, & CO catalyst
20	Natural Gas and #2 Fuel Oil – Fired General Electric LM6000 Simple Cycle Combustion Turbine Generator (CTG-2) (constructed 2002)	462.6 MMBtu/hr – Natural Gas 437 MMBtu/hr - #2 fuel Oil	Water injection, SCR, & CO catalyst

Table 1 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit¹
19	None	CO	≤ 4.3 lb/hr during #2 fuel oil firing
20	None	CO	≤ 4.3 lb/hr during #2 fuel oil firing

- (1) 'lb/hr' emission limits are based on a one hour block average and are for normal operation, excluding startup, shutdown and malfunction. The emission rates for oil firing are based on ambient temperatures of 54 °F.

Table 2 Key:

EU# = Emission Unit Number

CO = carbon monoxide

lb/hr = pound per hour

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
19 20	1. EU #19 and #20 shall comply with the monitoring and testing requirements specified in MassDEP Approval #1-B-02-003/004 (issued 2/4/2002), MassDEP Approval #1-B-03-015 (issued 6/9/2003), MassDEP Approval #1-P-03-032 (issued 11/14/2003) and MassDEP approval letter dated June 21, 2002.
Facility-wide	2. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	3. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13

Table 3 Key:

EU# = Emission Unit Number

Table 4	
EU#	Recordkeeping Requirements
19 20	1. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report .
	2. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	3. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) and PCD(s) approved herein on-site.
	4. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	5. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s), PCD(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	6. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	7. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	8. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

SOMP = Standard Operating and Maintenance Procedure

USEPA = United States Environmental Protection Agency

Table 5	
EU#	Reporting Requirements
19 20	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Western Regional Office of MassDEP, BWP Permit Chief by telephone [413-755-2115], email [marc.simpson@state.ma.us] or fax [413-784-1149], as soon as possible, but no later than three (3) days after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the Permit Chief at MassDEP within ten (10) days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
	4. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP’s request.
	5. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	6. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:

EU# = Emission Unit Number

4. **SPECIAL TERMS AND CONDITIONS**

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
Facility-wide	1. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. The Facility shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.
	2. The Permittee may make the approved changes herein, upon the submittal and receipt by MassDEP of a BWP AQ 10 Operating Permit Minor Modification application pursuant to 310 CMR 7.00 Appendix C (8)(d)3.

Table 6 Key:

EU# = Emission Unit Number

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.” The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
19	179	12	86	849
20	179	12	86	849

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

- J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Cortney Danneker by telephone at 413-755-2234, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Marc Simpson
Air Quality Permit Chief
Bureau of Waste Prevention

ecc: MassDEP/WERO – Peter Czapienski
MassDEP/Boston - Yi Tian

Lysa Modica
AMEC Environment and Infrastructure
271 Mill Road
Chelmsford, MA 01824